

REMARKS

Claims 1, 4-10, 12-52, 55-60, 62-107, 109-117, 119-131, 133-141, 143-153, 155-166, 168-170, and 172-184 are pending. Claims 16, 21, 70, 75, 111, 134, 156, and 175 are amended to conform the cited emission range to that of claim 1. Claims 3, 53 and 54 are canceled as redundant. Claims 6-9, 14, 24-31, 43-45, 47-51, 56-59, 64, 66-69, 76, 77, 80-87, and 102-107, 109-117, 119-131, 133-141, 143-153, 155-166, 168-170, and 172-184 are withdrawn.

Claims 1, 3-5, 10, 12, 13, 15-23, 32-42, 46, 52, 54, 55, 60, 63, 65, 70-75, 78, 79, and 88-101 were rejected as allegedly obvious over U.S. Patent No. 6,159,445 (“the Klaveness patent”) and U.S. Patent No. 6,123,923 (“the Unger patent”) in view of Lee, *et al.*, Biotechnol. And Bioeng., 2001, 73, 135-145 (“the Lee article”) and further in view of Lin, *et al.* (Chem. Eur. J., 1995, 1, 645-651) (“the Lin article”). To establish a *prima facie* case of obviousness, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The reason to make the claimed combination, and a reasonable expectation of success, must be found elsewhere than in Applicants disclosure, such as in the prior art, the nature of the problem to be solved, or in the knowledge/understanding of the person of ordinary skill in the art. MPEP § 2143; *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Furthermore, according to MPEP § 2141.02, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” Applicants submit that the instant rejection does not meet these requirements.

Claim 1 is directed to a polymersome comprising two elements (1) a membrane comprising amphiphilic copolymer that have at least one hydrophilic polymer bonded to at least one hydrophobic polymer and (2) emissive agents that emit light in the 700-1100 nm spectral regime and where the emissive agent is an emissive conjugated compound comprising at least two covalently bound moieties; whereby upon exposing the compound to

an energy source for a time and under conditions effective to cause the compound to emit light that at a wavelength between 700-1100 nm, the compound exhibits an integral emission oscillator strength that is greater than the emission oscillator strength manifest by either one of the moieties individually. While, the Klaveness patent and the Unger patent are alleged to teach vesicles for light imaging agents (Office Action at page 4), neither of the two elements of claim 1 is taught or suggested by the Klaveness patent nor the Unger patent. Neither patent discloses or suggests membranes comprising amphiphilic copolymers or direct one skilled in the art to select and use an emissive agent with the properties recited in the pending claims. While porphyrins are mentioned in passing in the Klaveness patent and the Unger patent, neither provides motivation to select these compounds from the list of possibilities. Further, there is nothing to suggest use of compounds that exhibit the property of an integral emission oscillator strength that is greater than the emission oscillator strength manifest by either one of the moieties individually.

Because neither the Klaveness patent nor the Unger patent teaches or suggests the emissive agents or the amphiphilic copolymers of the instant claims, *all* elements of the invention would have to be imported from other references. The Office seeks to provide the missing information by importing the teachings of the Lee article for the amphiphilic copolymer and the Lin article for porphyrin moieties. The Office's proposed reconstruction of the system described by the Klaveness patent or the Unger patent, however, would have *none* of the elements taught by the primary patents-- both the vessel material and the emissive agent are substituted with different materials. The extent of the reconstruction necessary to allegedly arrive at any instant claim is simply too extensive to be consistent with obviousness.

Applicants submit that it is improper for the Office to use the claimed invention as an instruction manual to piece together the teachings of the prior art so that the claimed invention is rendered obvious. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). The Office can not use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988). In the present reconstruction presented by the Office, as discussed above, *all* elements of the teachings of the primary reference are replaced. Based on these extensive changes to the disclosures of the Klaveness and Unger

patents, it seems that the instant invention can only be derived at through the use of impermissive hindsight based on Applicant's blueprint. For at least this reason, the rejection should be withdrawn.

Furthermore, in regard to claim 16, there is simply nothing in the Klaveness and Unger patents to suggest use of an ethynyl- or butadiynyl-bridged multi(porphyrin) compound that features a β -to- β , meso-to- β , or meso-to-meso linkage topology. Even though the prior art inventors list porphyrins in their broad lists of emissive agents, there is no evidence to suggest that they would have conceived of such emissive agents having the property that upon exposing the agent to an energy source for a time and under conditions effective to cause the agent to emit light that at a wavelength between 700-1100 nm and exhibit an integral emission oscillator strength that is greater than the emission oscillator strength manifest by either one of the moieties individually. It should be further noted that the properties of a single porphyrin molecule have as much in common with our emissive agents as benzene does with poly-phenyleneethynylene. As is clear from Figure 2 and the related discussion in the specification, the type and extent of conjugation plays a major role in emission properties. For at least this reason, Applicants ask that the rejection be withdrawn as applied to claim 16.

Upon allowance of the non-withdrawn claims, Applicants ask that the full scope of the elected invention be examined. Additionally, upon allowance of the product claims, Applicants request rejoinder of the process claims in accordance with the provisions of MPEP § 821.04. The withdrawn process claims are amended herein to conform to the scope of the pending product claims.

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**PATENT
REPLY FILED UNDER EXPEDITED
PROCEDURE PURSUANT TO
37 CFR § 1.116**

The foregoing is believed to constitute a complete and full response to the Office Action of record. Accordingly, an early and favorable reconsideration of the rejections and an allowance of all of pending claims is earnestly solicited. Should the Examiner determine that any further action is necessary to place the Application I condition for allowance, the Examiner is encouraged to contact the undersigned by telephone.

Respectfully submitted,

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